REMARKS

Support: The recited "supernatant" is supported in the Specification at paragraphs 0143, 0152 and 0156, 0176, 0178, 0182, 0184, 0186, 0216 and 0221. Bridging Claim 10 is supported at 0104 and 0146. Claim 32 is supported at paragraph 0007 of the Specification; Claim 49 by Table A, page 14.

Page 2 and following of the Office Action are set forth below with Applicants' responses interlineated:

Application/Control Number: 09/994,701 Art Unit: 1633
DETAILED ACTION
Election/Restrictions
Page 2 Claims 14, 15 and 31, corresponding to Group II in the restriction requirement dated 5/22/2008, have been canceled.
Applicants election of the species of RNA and IDA in the response dated 10/24/2008 is acknowledged. However, in light of the teachings of the prior art as set forth below. the species requirement of a specific ligand as recited, for example, in claim 44 is withdrawn, as is the species requirement for a type of target compound.
Claims 10-13, 16,22-25,29,30,32,34-44 are pending and under examination.
Specification
The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(l) and MPEP § 608.01(0). Correction of the following is required: amended claims 10, 12, 23, and 36 recite the terms "DNA and/or RNA target compounds" or " DNA and/or RNA compounds", terms not found in the specification.
Claim Objections
Claim 23 is objected to because of the following informalities: "nucleic aid" in line 10 should be "nucleic acid." Appropriate correction is required.

In Claim 23, the spelling of "acid" has been corrected.

Claim 40 is objected to because of the following informalities: "complex in performed in batch mode" in line 3 should be " complex is performed in batch mode." Appropriate correction is required.

In Claim 40, line 3; the spelling of "is" has been corrected.

Application/Control Number: 09/994,701 Art Unit: 1633
Claim Rejections - 35 USC § 112
The following is a quotation of the second paragraph of 35 U.S C. 112:
Page 3
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This is a new rejection necessitated by amendment of the claims in the response dated 10/27/2006.
Claim 11 recites the limitation "the supernatant liquid" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 has been reworded to provide antecedent.

Claim Rejections - 35 USC § 102
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless -
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
Claims 22-25,29, 30, 32, 35, 36, 41 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Petty (Curr. Protocols Mol. Biol., 1996, of record). This rejection is maintained for reasons made of record in the Office Action dated 2/8/2005, 6/27/2006, and for reasons set forth below. Claims 29, 30 and 32 have been added to the rejection due to amendment
Application/Control Number: 09/994,701 Art Unit: 1633
of the claims to be either properly dependent, or to be clear and concise under the provisions of 35 USC 112 2nd paragraph.

Claims 10,12, 22, 29, 30 and 47 now recite elution and collection of oligonucleotides, RNA or DNA. Petty does not elute or collect these, and for anticipation under 35 USC 102, every element of the claim must be taught by the reference.

Claims 41, 42 and 44 are new.
Page 4
Regarding new claims 41 and 42, bacterial RNA and eukaryotic RNA comprise more than four non-shielded purines and pyrimidines, absent evidence to the contrary, i.e. tRNAs, rRNAs and mRNAs, all present in the lysates of Petty et al, can all comprise ten, hundreds, or thousands of non-shielded purines and pyrimidines. As a limited example, the mRNA encoding the histidine fusion protein of Petty et al is at the very least 18 residues: it must comprise the six histidine codons as taught in Figure 10.11B.I. Bacterial and eukaryotic celllysates also comprise double stranded DNA in their genomes, and in any transfected plasmids.

Petty purifies his-tagged protein. Petty involves contacting IMAC ligand with lysates containing RNA and DNA. Petty does not achieve elution or collection of Applicants' purified (low protein) RNA or DNA. Petty's product is protein!

Regarding claim 42, it is considered that this is an inherent feature of the metal affinity column or the cell lysates of Petty et al, particularly in light of the other art of record wherein metal affinity was used to purify nucleotides (e.g. Hubert) and in light of the rarity of any given species of mRNA in a cell lysate amongst all other potential contaminants and RNAs. For example, the mRNA encoding the histidine fusion protein will only be one of perhaps thousands of mRNA molecules in the lysate. See MPEP 2112 in general for a discussion of inherency.

Claim 42 depends on Claim 32 which recites collecting purified (low protein) polynucleotide. Petty's product is protein!

Regarding claim 44, NTA is taught by Petty et al on page 10.11.10, first ~

Claim 44 depends on Claim 10 which recites elution and collection of elution and collection of purified (low protein) RNA or DNA. Petty's product is protein!

Response to Arguments
Applicant's arguments filed 10/27/2006 have been fully considered but they are not persuasive. Applicants essentially assert that: 1) Petty is directed to protein purification, not nucleic acid purification; 2) Petty teaches adding protease inhibitors which is a step not required by the instant invention; 3) Petty teaches addition of DNAse, which would be disastrous in the instant invention; 4) Petty teaches purification only from E. Coli, whereas the instant invention Application/Control Number: 09/994,701 Art Unit: 1633
Page 5
uses much broader sources; 5) Petty does not expressly or inherently teach treating lysates to recover DNA or RNA having at least four unshielded purines or pyrimidines; 6) Petty does not teach recovering DNA or RNA thus there can be no inherency; 7) Petty does not teach using mammalian cell lysates or patient cells as recited in the instant claims; 8) applicants favor a different metal (Cu) and chelator (IDA) than Petty; 9) Petty teaches a histidine fusion protein in his lysates, which is a contaminant in applicants view; 10) applicants favor ploy(a) mRNA which is not present in Petty's lysates; 11) Petty adds Mg and DNAse, rendering his methods useless for DNA purification; 12) Petty does not inhibit the activity of RNAse, which is important in many of applicants methods;
Regarding 1), 5), and 6), at the very least RNA is present in the bacterial celllysates of Petty and thus is anticipatory of the claims as amended. See the further explanation above. Petty uses the same protocols and reagents (e.g. Ni-NTA resin, celllysates comprising RNA) as the instant invention and thus inherently anticipates the claims. See MPEP 2112 for a discussion of inherency.

The instant claims 10, 12, 45-48 recite that DNA or RNA is collected free of protein. Petty does not do that.

furthermore the limitation was found in original claim 12, and considered anticipated by the elution conditions taught by Petty (previous Office Action).

Regarding 2),3) and 11), the claims are worded with open language, e.g. "A method .. comprising .. " and thus embrace additional method steps. The step of adding a DNAse, even if it were to degrade all DNA in the lysate, would still leave RNA available to bind to the Ni-NTA resin. This step would be seen as desirable in the purification of RNA. i.e. it is an easy step to remove DNA contaminants.

The instant claims recite the purification of DNA by elution and collection of elution and collection of purified (low protein) RNA or DNA. Petty's product is protein!

Application/Control Number: 09/994,701 Art Unit: 1633
Page 6
Regarding 4), 7) and 10), Petty teaches eukaryotic celllysates for reasons of record (page 12 of the Office Action dated 2/8/2005, page 10.11.22 of Petty). Such cells inherently have poly(A) mRNA.
Regarding 8), 9), and 12), in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e.methods using only Cu and IDA; methods wherein a histidine fusion

protein is not present; the use of RNAse) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181.26 USPQ2d 1057 (Fed. Cir. 1993). This is not a 103 rejection, hence there is no need to argue "teaching away from." Ni-NTA is embraced by and recited in the instant claims (e.g. claim 44).

The Claims now recite clearly that a histidine fusion protein is not present and the collected polynucleotide is substantially free of polypeptides (which also includes Verdine's his-tags).

Claims 10-13, 16,32,34,36-40 and 42-44 are rejected under 35 U.S.C. 102(b) as anticipated by Verdine et al (WO 98/00435, of record) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Verdine et al as evidenced by Min et al (Nuc. Acids Res., 1996, pages 3806-3810). This is a new rejection necessitated by amendment of the claims to recite DNA or RNA compounds comprising at least "four non-shielded ... moieties", and, in some instances, that the target compound is collected substantially free of protein. Claim 32 has been amended to be clear and concise under the provisions of 35 USC 112 2nd paragraph, rendering clear what compound is being recovered, and what is not.
Verdine el al teach a method comprising introduction of a single-stranded region (non-shielded) of nucleic acid as an affinily handle into the desired nucleic acid, followed by capture
Application/Control Number: 09/994,701 Art Unit: 1633
Page 7
of the desired nucleic acid by a technique that is selective for the characleristics of the affinity handle (see page 10, lines 1-5; page 11, line 1 through page 12, line 4). Verdine et al introduced a single-stranded region of nucleic acid into a desired nucleic acid by way of using the single-stranded region of nucleic acid as a primer to PCR amplify a target nucleic acid, thus the starting mixture comprised an enzyme, i.e. a DNA polymerase used in PCR reactions (page 3807, last ~first column, Min et al, a publication describing the methods of Verdine et al). One of the primers was tagged with six successive 6-histaminylpurine residues (see page 9, lines 20-22 and page 10, line 3, "H6-tagged primer"). Verdine denatured the resulting PCR product in 6M guanidinium":HCl (page 11, lines 6-7), thus exposing the single-stranded affinity handle. The tagged strand of the PCR product was immobilized on Ni^{2}+-NTA resin (page 11, lines 6-7), allowing it to be separated from the other strand. Note that either the tagged on non-tagged strand of the PCR product may be considered the DNA target compound.

Verdine actually shows the invention is not obvious because someone skilled in the art (Verdine) teaches it is necessary to attach a histidine tag to a nucleic acid in order to separate it.

The Petty reference only teaches that his-tagged protein will bind to IMAC. [In Petty the affinity bind a protein through an amino acid based tag (6-His).] Petty does not achieve elution or collection of Applicants' purified (low protein) RNA or DNA as recited in the claims.. Petty's product is protein!

containing contaminants such as the DNA polymerase was removed and purified DNA bound to the IMAC column was eluted with imidazole (Example 3, page 11).

Regarding claims 40 and 43, Verdine teaches incubating IMAC ligand with the target compound in batch mode (page 11, first ~).

Regarding claims 42 and 43, the DNA primers were used at a picomolar concentration absent evidence to the contrary (Min et al, page 3807, first column, last~

Claims 40, 42 and 43 depend on Claim 32 which recites elution or collection of Applicants' purified (low amino acid) RNA or DNA as recited in the claims.. Petty's product is protein! Verdine does not collect DNA purified free of amino acids as recited in Claim 32.

In this response, the Claims were clarified but no new matter or estoppel is involved.

Any necessary (small entity) charges can be charged to USPTO Deposit Account 200336 of Technology Licensing Co. LLC. Correspondence may be addressed to Customer No. 26830.

This Amendment is being filed within two months of the Final Action. If this Amendment cannot be entered unless a Request for Continued Examination is filed, Applicants' Attorney requests a phone call to him at 727 781 0089 so he can timely file an R.C.E.

The Examiner is especially invited to suggest allowable subject matter on next action, and to telephone Applicants' Attorney if that would expedite prosecution and disposal of this Application.

Respectfully submitted

Richard Coale Willson, Jr
Attorney for Applicants
Registration No. 22,080
USPTO Customer 26830
Technology Licensing Co. LLC
3205 Harvest Moon Ste 200
Palm Harbor FL 34683

Telephone - 727 781 0089
Fax: 727 785 8435
rwillso@verizon.net

012MUSrFinalIMAC20090323FFFasfiled.doc